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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,438	08/15/2003	Roger Moulton	SAX-008.01	2478
25181 7590 11/27/2009 FOLEY HOAG, LLP PATENT GROUP, WORLD TRADE CENTER WEST 155 SEAPORT BLVD BOSTON, MA 02110				
EXAMINER				
OH, TAYLOR V				
ART UNIT		PAPER NUMBER		
1625				
MAIL DATE		DELIVERY MODE		
11/27/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/642,438

**Applicant(s)**

MOULTON ET AL.

**Examiner**

Taylor Victor Oh

**Art Unit**

1625

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 7, 23-27, 30-34, 37, 39, 41-49, 51, 52 and 57-65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 7, 23-27, 30-34, 37, 39, 41-43, 51, 52 and 57-65 is/are rejected.
- 7) ☐ Claim(s) 44-49 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-940)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

***Final Rejection***

**The Status of Claims :**

Claims 1,7, 23-27,30-34,37,39,41-49,51,52,57-65 are pending.

Claims 1,7, 23-27,30-34,37,39,41-43,51,52, and 57-65 are rejected.

Claims 44-49 are objected.

**Claim Objections**

Claims 44-49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Claim Rejections - 35 USC § 112**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The rejection of Claims 1, 7, 22-27,29-34,37,39, 41-49,51,57-65, and their corresponding dependent claims under 35 U.S.C. 112, second paragraph, has been withdrawn due to the modification of the claims; however, claim 52 remains as rejected

due to applicants' failure to modify the claim. Furthermore, in claim 43, there is a new issue to be resolved because of the modification of the claim.

Claims 43, 58-59, 62, and 65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 43 and 58, the phrase "alkyl, alkene, alkyne, alkyl ether" and " alkyl.. N-alkyl or N-alkoxy substituted saturated heterocycle" is recited. These are vague and indefinite because the claim does not elaborate how many carbon atoms are present in the upper and lower range of the carbon chain; furthermore, it is unclear what kind of the heterocyclic ring is present in the first ionic liquid since there are numerous heterocyclic rings in the chemical industry. Therefore, an appropriate correction is required.

. Therefore, an appropriate correction is required.

#### **Claim Rejections-35 USC 103**

I. Applicants' argument filed 7/21/09 have been fully considered but they are not persuasive.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**The rejection of Claims 1, 7, 22,27,29, 31,33,34,37,39, 41-43, 60-65 under 35**

**U.S.C. 103(a) as being unpatentable over Kaneko et al (JP08-030013).**

The reaction of Claims 1, 7, 22,27,29, 31,33,34,37,39, 41-43, 60-65 under 35 U.S.C. 103(a) as being unpatentable over Kaneko et al (JP08-030013) has been maintained for the reasons of the record on 5/11/09.

In view of the modification of the claims, the new prior art rejection are necessitated in the followings:

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

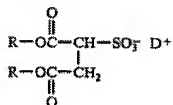
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,7, 23-24,26,27,31,34,37,39,41,42,51, 57, 60-61, and 63-64 are rejected under 35 U.S.C. 102(b) as being anticipated clearly by Kissa (US 4,063,889).

Kissa discloses the followings (see from col. 2 ,line 47 to col. 3 , line 25):

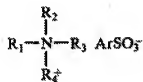
This invention provides an exhaustion process for dyeing unmodified or acid-modified polyester fibers comprising:

- A. introducing said fibers into a dyebath containing:
1. a chlorinated hydrocarbon solvent, with the proviso that in the case of the acid-modified polyester fibers from 0.01 to 0.10% based on the total weight of the dyebath of water must also be present,
  2. from 0.01 to 1% based on the total weight of the dyebath of a water-insoluble salt of a cationic dye and an alkyl sulfosuccinate anion of the formula



wherein  $\text{D}^+$  is a cationic chromophore having a resonating or delocalized positive charge and R is an alkyl radical containing from 6 to 13 carbon atoms,

3. from 0.05 to 1.0% based on the total weight of the dyebath of at least one low-molecular weight carboxylic acid,
4. 1 to 1.5 moles per mole of water-insoluble sulfosuccinate salt (2) of a solvent-soluble quaternary ammonium salt of an arylsulfonic acid of the formula



wherein R<sub>1</sub> and R<sub>2</sub> are alkyl; R<sub>3</sub> and R<sub>4</sub> are alkyl or benzyl; or R<sub>3</sub> and R<sub>4</sub> together form a heterocyclic ring containing the nitrogen atom; or R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> together form a pyridinium ring; and wherein the R groups contain a total of from 12 to 40 carbon atoms and Ar is an aryl group substituted with from 1 to 3 substituents selected from the group consisting of H, Cl, Br, NO<sub>2</sub>, C<sub>1-4</sub>alkyl, C<sub>1-4</sub>alkoxy, CO<sub>2</sub>C<sub>1-4</sub>alkyl, CO<sub>2</sub>C<sub>2</sub>H<sub>4</sub>OH and COCH<sub>3</sub>, and

- (5) optionally, additional processing assistants, and
- B. maintaining the fibers in the dyebath at a temperature of from 110° to 170° C for from 0.5 to 3 hours;

In the present invention, alkyl sulfosuccinates having from 6 to 13 carbon atoms in the alkyl group are em-

ployed in place of the water-solubilizing anions mentioned above. Such anions include the following: bis(2-ethylhexyl)sulfosuccinate, di(tridecyl)sulfosuccinate, di(dodecyl)sulfosuccinate, dihexylsulfosuccinate and the like. The aliphatic groups (the R's) in a single compound need not be the same but, for the sake of convenience and economy, generally are.

(see from col. 6 ,line 67 to col. 7 ,line 7).

In the above manner, yields of cationic dye-sulfosuccinate salts of greater than 80% can be obtained, frequently yields of greater than 90% are obtainable. The stoichiometry of the cationic dye-sulfosuccinate salt is as would be expected to balance the electrical charges, i.e., 1:1.

(see

col. 7 ,lines 20-25).



**TABLE I**

tetra-n-butylammonium	
trimethylhexadecylammonium	
stearyl(C <sub>18</sub> )dimethylbenzylammonium	
cetyl(C <sub>16</sub> )trimethylammonium	
cetyl(C <sub>16</sub> )dimethylbenzylammonium	
lauryl(C <sub>12</sub> )trimethylammonium	
stearyl(C <sub>18</sub> )trimethylammonium	
oleyltrimethylammonium	
dibenzyltrimethylammonium	
methyltri-n-butylammonium	
cetyl(C <sub>16</sub> )pyridinium	
myristyl(C <sub>14</sub> )trimethylammonium	dimethyldis-
tearylammonium	
N-cetyl(C <sub>16</sub> )-N-ethylmorpholinium	
didecyltrimethylammonium	

(see col. 8, lines 2-22). This is identical with the claims.

***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

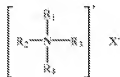
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- 
5. Claims 1,7, 23-25,26,27,30-33,34,37,39,41, and 63-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bratescu et al (US 6,306,805).

Bratescu et al discloses the surfactant compositions containing a mixture of one cationic surfactant (see col. 26, lines 30-60) :

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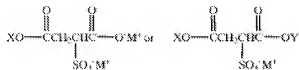


where  $R_1$ ,  $R_2$ , and  $R_3$  are independently ethyl, methyl or benzyl;  $R_4$  is an alkyl group having an average of from about 8 to about 18 carbon atoms (preferably 8 to 16 carbon atoms); and X is an suitable ion including but not limited to halogen, sulfate, methosulfate, ethosulfate, tosylate, acetate, phosphate, nitrate, sulfonate, or carboxylate. Additionally, the alkyl  $R_4$  group can be a straight, branched, mid-chain branched or cyclic alkyl group.

Other quaternary ammonium compounds and amine salt compounds include those of the above general formula in the form of ring structures formed by covalently linking two of the radicals. Examples include imidazolines, imidazoliniums, and pyridiniums, etc., wherein said compound has at least one nonionic hydrophile-containing radical as set forth above. Specific examples include 2-heptadecyl-4,5-dihydro-1H-imidazol-1-ethanol, 4,5-dihydro-1-(2-hydroxyethyl)-2-isohexadecyl-1-phenylmethylimidazolium chloride, and 1-[2-oxo-2-[[2-[(1-oxooctadecyl)oxy]ethyl]amino]ethyl]pyridinium chloride. Additionally, usefully polymerizable surface active agents include those of the above general formula in the form of ring structures formed by covalently linking two of the  $R_1$ - $R_4$  groups.

and anionic sulfosuccinates shown below (see col. 35 ,lines 24-45) :

Suitable auxiliary anionic sulfosuccinates include those having the formula



where

X and Y are the same or different and are selected from the group consisting of

R and  $\text{R}(\text{CH}_2\text{CH}_2\text{O})_x$ , where x has an average value from about 1 to about 30;

R is  $\text{C}_8$ - $\text{C}_{22}$  alkyl;

and M is a counterion.

Auxiliary anionic sulfosuccinate surfactants are preferably selected from the group consisting of the  $\text{C}_8$ - $\text{C}_{22}$  sulfosuccinates. Most preferably, the auxiliary anionic sulfosuccinate surfactants is a mono- $\text{C}_{10}$ - $\text{C}_{16}$  alkyl sulfosuccinate such as disodium laureth sulfosuccinate (STEPAN-MILD® SL3, commercially available from Stepan Company, Northfield, Ill.)

Furthermore, the total concentration of combined cationic, anionic and other surfactants is from 3 % to 40 % by wt based on the total wt of the composition (see col. 7 ,lines 10-15).

The instant invention ,however, differs from the prior art in that the claimed composition contains more than 70 wt % of an ionic liquid comprising a cation and an anion.

Concerning the % difference between the current invention and the prior art composition, the claimed ranges ( at least 70 wt % ) and prior art (40 % )do not overlap but in spite of such difference, one skilled in the art would have expected them to have the similar properties because there is not much patentable difference between them in

the absence of an unexpected result. Furthermore, the prior art has offered guidance that the composition may contain from 5 to 90 % water and/or solvent (see col. 42 ,lines 31-34). Therefore, it would have been obvious to the skilled artisan in the art to be motivated to modify the desired concentration of the ionic surfactants by routine experimentations. This is because the skilled artisan in the art would expect such a manipulation to be feasible as guidance shown in the prior art (see col. 7 ,lines 10-15).

### **Applicants' Argument**

a . Kaneko teaches away from the reduction of the quantity of water by stressing its importance in the compositions; thus, there is no motivation to increase the concentration to the claimed concentration.

Applicants' arguments have been noted, but the arguments are not persuasive.

First, regarding the applicants' first argument , the Examiner has noted applicants' arguments. However, the prior art does suggest a motivation to increase the concentration in reviewing the following paragraph(see page 11, paragraph# 0010):

In order to acquire the removal property of the good image formation matter also in the passage of time, as for the amount of a hydroxide as shown by said formula (2-A) - (2-D), and alkanolamine, it is desirable to be added to the number of mols of a front-type (1) compound, so that it may become 50 % of the weight or more .

Therefore, unlike applicants' argument about the addition of water in the prior process, there is a teaching of increasing the concentration of the composition by adding the M material if so desired. As the ordinary skilled artisan in the art knows the meaning of the claimed ionic liquid , that is nothing more than the liquid containing equivalent amounts of the anion and cation. Therefore, it seems reasonable to have a greater than 50 wt % of the ionic liquid depending on its usage. Therefore, it would have been obvious to the skilled artisan in the art to be motivated to adjust the concentration of the ionic liquid depending on its usage by routine experimentation. This is within the purview of the skilled artisan in the art. Therefore, the prior art is still relevant to the claimed invention.

### **Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 571-272-0689. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Andres can be reached on 571-272-0867. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Taylor Victor Oh/  
Primary Examiner, Art Unit 1625  
11/22/09